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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FEARER, MARK D

ART UNIT

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2443

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/693,362	Applicant(s) SHAH, ASHISH	
	Examiner MARK D. FEARER	Art Unit 2443	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 24 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8, 12-15, 17, 19-23 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-4,12,14-15,17,20-23 and 27 is/are rejected.
- 7) ☒ Claim(s) 2, 8, 13 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10 February 2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's Amendment filed 24 February 2010 is acknowledged.
2. Claims 20-23 and 27 have been amended.
3. Claims 5, 9-11, 16 and 24 are cancelled.
4. Claims 1-4, 8, 12-15, 17, 20-23 and 27 are pending in the present application.
5. This application is made FINAL.

Information Disclosure Statement

6. The information disclosure statement (IDS) submitted on 10 February 2010 has been considered by the examiner.

Allowable Subject Matter

7. Claims 2, 8, 13 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements

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of this title.

Claims 20-23 and 27 are rejected under 35 USC 101 since the claims are directed to non-statutory subject matter. Claims 20-23 and 27 recite a computer program product that includes a computer readable medium which appears to cover both transitory and non-transitory embodiments. The United States Patent and Trademark Office (USPTO) is required to give claims their broadest reasonable interpretation consistent with the specification during proceedings before the USPTO. *See In re Zletz*, 893 F.2d 319 (Fed. Cir. 1989) (during patent examination the pending claims must be interpreted as broadly as their terms reasonably allow). The broadest reasonable interpretation of a claim drawn to a computer readable medium (also called machine readable medium and other such variations) typically covers forms of non-transitory tangible media and transitory propagating signals *per se* in view of the ordinary and customary meaning of computer readable media, particularly when the specification is silent. *See* MPEP 2111.01. When the broadest reasonable interpretation of a claim covers a signal *per se*, the claim must be rejected under 35 U.S.C. § 101 as covering non-statutory subject matter. *See In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007) (transitory embodiments are not directed to statutory subject matter) and *Interim Examination Instructions for Evaluating Subject Matter Eligibility Under 35 U.S.C. § 101*, Aug. 24, 2009; p. 2.

The Examiner suggests that the Applicant add the limitation "non-transitory computer readable medium" to the claims in order to properly render the claims in

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statutory form in view of their broadest reasonable interpretation in light of the originally filed specification.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1, 3-4, 12, 14-15, 17, 20, 22-23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurley et al. (US 6678882 B1) in view of Freeman et al. (US 20010049717 A1) and in further view of Wu et al. (US 20040117579 A1).

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Consider claims 1, 12, 20 and 27. Hurley et al. discloses a collaborative model for software systems with synchronization submodel with merge feature, automatic conflict resolution and isolation of potential changes for reuse, comprising a method for synchronizing a plurality of instances of a storage platform for a hardware/software interface systems, said method comprising: dividing said storage platform into change units (column 30 line 15 – column 31 line 47); sequentially enumerating changes and tracking said changes on a per change unit basis (column 4 line 45 – column 5 line 14 and column 5 line 56 – column 6 line 4); each of the plurality of instance, tracking a state of changes for that instance, as well as a state of changes for a plurality of other known instances in a sync community (column 15 lines 30-52); and for synchronization, identifying new changes by comparing enumerated changes for a particular instance with the state of changes for that instance (column 4 line 45 – column 5 line 14); wherein said multiple instances of said storage platform comprise a multi-master sync community (column 25 line 63 – column 26 line 12 and column 28 lines 43-67).

However, Hurley et al. does not explicitly disclose a method for synchronizing a plurality of instances of a storage platform wherein a change unit is mapped to a community folder with which each of the plurality of instances synchronizes, each of the plurality of instances storing a mapping of the change unit from a local format to a format of the community folder. Freeman et al. discloses a method and apparatus for communicating among a network of servers comprising a common database (read as community folder) (“As described above, the servers 180 store "static" data, i.e., data that persist across client sessions, in the persistent store 230. Writing to the persistent

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store 230 can take relatively long periods of time. To minimize accesses to the persistent store 230, the servers 180 may develop a logical, common database (i.e., the dynamic store 240) that is accessible by all of the servers 180 in the farm 110 for accessing and storing some types of data. The dynamic store 240 may be physically implemented in the local memory of a single or multiple servers 180 in the server farm 110, as described in greater detail below. The local memory can be random access memory, disk, disk farm, a redundant array of independent disks (RAID), or any other memory device that allows data to be read and written.”) paragraph 0109); conversion of events into a model format ((“The persistent store system service module 352 essentially converts an event message submitted by the requesting entity in an external data model format into a locally understood internal data model format, and vice versa, in order to service the request. The internal and external data models supported by the persistent store system service module 352 can, for example, correspond to the lightweight directory access protocol (LDAP) data model or other protocol or database formats. The ability to convert external data models from a number of different requesting entities into a single internal data model (and vice versa) enables the persistent store system service module 352 to provide uniform access to data stored on the persistent store 230.”) paragraph 0168); and a mapping of events (read as a mapping of instances) ((“In one embodiment, the objects in the persistent store 230 may be stored in a database file and, in this embodiment, the persistent store 230 maybe searched using traditional database requests. In another embodiment, the distinguished name of the requested data as specified by the external data model is mapped to the

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implicit or pre-defined schema stored on the persistent store 230. The pre-defined schema may include one or more fields that allow the objects within the database to be arranged as a tree data structure (e.g., a binary tree). For example, each entry in the persistent store 230 may include a "ParentID" field, a "NodeID" field, and a "Node Name" field as shown in Table 1 below, which allow the persistent store 230 to be searched as a tree data structure. For this embodiment, every object stored in the persistent store 230 may have an attribute that specifies the location of the object in the tree. This location can be an absolute position in the tree with respect to the root node or relative to the locations of other objects in the tree (e.g., relative to a parent node). Table 1 illustrates an exemplary arrangement of objects in the persistent store 230 that can be traversed like a tree") paragraph 0170).

Hurley et al. discloses a prior art collaborative model for software systems with synchronization submodel with merge feature, automatic conflict resolution and isolation of potential changes for reuse, comprising a method for synchronizing a plurality of instances of a storage platform for a hardware/software interface systems, said method comprising: dividing said storage platform into change units; sequentially enumerating changes and tracking said changes on a per change unit basis; each of the plurality of instance, tracking a state of changes for that instance, as well as a state of changes for a plurality of other known instances in a sync community; and for synchronization, identifying new changes by comparing enumerated changes for a particular instance with the state of changes for that instance; wherein said multiple instances of said

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storage platform comprise a multi-master sync community upon which the claimed invention can be seen as an improvement.

Freeman et al. discloses a method and apparatus for communicating among a network of servers comprising a common database; conversion of events into a model format; and a mapping of events.

Thus, the manner of enhancing a particular device (method and apparatus for communicating among a network of servers comprising a common database; conversion of events into a model format; and a mapping of events) was made part of the ordinary capabilities of one skilled in the art based upon the teaching of such improvement in Freeman et al. Accordingly, one of ordinary skill in the art would have been capable of applying this known improvement technique in the same manner to the prior art collaborative model for software systems with synchronization submodel with merge feature, automatic conflict resolution and isolation of potential changes for reuse, comprising a method for synchronizing a plurality of instances of a storage platform for a hardware/software interface systems, said method comprising: dividing said storage platform into change units; sequentially enumerating changes and tracking said changes on a per change unit basis; each of the plurality of instance, tracking a state of changes for that instance, as well as a state of changes for a plurality of other known instances in a sync community; and for synchronization, identifying new changes by comparing enumerated changes for a particular instance with the state of changes for that instance; wherein said multiple instances of said storage platform comprise a multi-master sync community of Hurley et al. and the results would have been predictable to

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one of ordinary skill in the art, namely, one skilled in the art would have readily recognized a method of consistency unit replication.

However Hurley et al., as modified by Freeman et al., does not explicitly disclose a system and method wherein a folder is an abstraction that represents a shared folder with which each of the instances of the storage platform synchronizes.

Wu et al. discloses a system and method for implementing shared memory regions in distributed shared memory systems wherein controller firmware may use the memory mapping information to identify access requests that may require synchronization of data stored on storage devices, accessing shared control data stored in a metadata region. This reads on the Claimed folder is an abstraction that represents a shared folder with which each of the instances of the storage platform synchronizes.

[0094] In one embodiment, firmware 70 executing on a processing device 12 included in each array controller may manage implementation of the cache coherence scheme. The firmware may also maintain synchronization between memory accesses to the same storage array address initiated by different array controllers. The array controller firmware may use the memory mapping information to identify access requests that may require synchronization and/or coherency information (e.g., host access requests targeting blocks of data stored on storage devices 54). The array controller firmware may use the metadata and/or semaphore regions to store coherency information. For example, firmware 70 executing on a processing device 12 may access shared control data stored in metadata region 26 of a local memory 16 to determine whether any nodes currently have a valid copy of a particular block of user data. If a host computer sends a read request for block A to array controller 10A, firmware may generate a read request to access a portion of metadata region 26 in order to determine which nodes, if any, currently have a valid copy of that block cached in memory 16. The firmware may also update coherency information in response to performing certain types of accesses to certain mapped memory regions.

Hurley et al., as modified by Freeman et al., discloses a prior art collaborative model for software systems with synchronization submodel with merge feature,

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automatic conflict resolution and isolation of potential changes for reuse, comprising a method for synchronizing a plurality of instances of a storage platform for a hardware/software interface systems, said method comprising: dividing said storage platform into change units; sequentially enumerating changes and tracking said changes on a per change unit basis; each of the plurality of instance, tracking a state of changes for that instance, as well as a state of changes for a plurality of other known instances in a sync community; and for synchronization, identifying new changes by comparing enumerated changes for a particular instance with the state of changes for that instance; wherein said multiple instances of said storage platform comprise a multi-master sync community; and for communicating among a network of servers comprising a common database; conversion of events into a model format; and a mapping of events upon which the claimed invention can be seen as an improvement.

Wu et al. discloses a system and method for implementing shared memory regions in distributed shared memory systems wherein controller firmware may use the memory mapping information to identify access requests that may require synchronization of data stored on storage devices, accessing shared control data stored in a metadata region.

Thus, the manner of enhancing a particular device (system and method for implementing shared memory regions in distributed shared memory systems wherein controller firmware may use the memory mapping information to identify access requests that may require synchronization of data stored on storage devices, accessing shared control data stored in a metadata region) was made part of the ordinary

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capabilities of one skilled in the art based upon the teaching of such improvement in Wu et al. Accordingly, one of ordinary skill in the art would have been capable of applying this known improvement technique in the same manner to the prior art collaborative model for software systems with synchronization submodel with merge feature, automatic conflict resolution and isolation of potential changes for reuse, comprising a method for synchronizing a plurality of instances of a storage platform for a hardware/software interface systems, said method comprising: dividing said storage platform into change units; sequentially enumerating changes and tracking said changes on a per change unit basis; each of the plurality of instance, tracking a state of changes for that instance, as well as a state of changes for a plurality of other known instances in a sync community; and for synchronization, identifying new changes by comparing enumerated changes for a particular instance with the state of changes for that instance; wherein said multiple instances of said storage platform comprise a multi-master sync community; and for communicating among a network of servers comprising a common database; conversion of events into a model format; and a mapping of events of Hurley et al. and the results would have been predictable to one of ordinary skill in the art, namely, one skilled in the art would have readily recognized a method of shared regions in distributed systems.

Consider claims 3, 14 and 22, as applied to claims 1, 12 and 20, respectively.

Hurley et al., as modified by Freeman et al. and Wu et al., discloses a method wherein a

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change unit includes fewer than all of the elements in the set of elements (Hurley et al., column 15 lines 30-44, and Freeman et al., paragraph 0357).

Consider claims 4, 15 and 23, as applied to claims 1, 12 and 20, respectively. Hurley et al., as modified by Freeman et al. and Wu et al., discloses a method wherein a change unit does not include a Property of a Nested Element in said set of elements (Hurley et al., column 17 lines 11-19, and Freeman et al., paragraph 0167).

Consider claim 17, as applied to claim 12. Hurley et al., as modified by Freeman et al. and Wu et al., discloses a method wherein changes to an instance are uniquely enumerated based on a unique replica identification, and wherein said changes are sequentially enumerated for said instance (Hurley et al., column 33 lines 25-46).

Response to Arguments

11. Applicant's arguments filed 24 February 2010 with respect to claims 1, 12 and 20 have been considered but are not persuasive.

Applicant argues that the "MergeAgent" of Hurley does not teach the "change unit" of claim 1. Examiner respectfully disagrees. Examiner interprets the 'MergeAgent', comprising a set of elements, of Hurley et al. to read on Applicant's Claimed 'change unit' and 'set of elements'.

Conclusion

12. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

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Any inquiry concerning this communication or earlier communications from the

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Examiner should be directed to Mark Fearer whose telephone number is (571) 270-1770. The Examiner can normally be reached on Monday-Thursday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Tonia Dollinger can be reached on (571) 272-4170. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Mark Fearer
/M.D.F./
May 3, 2010

/George C Neurauter, Jr./

Primary Examiner, Art Unit 2443